IN THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently Amended) A method of manufacturing an electric double layer capacitor having electrolyte, a positive electrode and a negative electrode, the method comprising:

a first process for selecting the electrolyte through a simulation; and

a second process for setting respective surface areas of the positive electrode and the negative electrode,

wherein the first process includes the steps of:

a first step for selecting cation, anion and solvent forming the electrolyte;

a second step for finding a first value by calculating an energy ~~of an association complex formed of the cation and the anion while the association complex is in a stable state~~ which represents a total energy of the association complex formed of the cation and the anion while the association complex is in a stable state;

a third step for finding a second value ~~by calculating an energy produced at reduction of the association complex, and finding a third value by calculating an energy produced at oxidization of the association complex~~ by calculating the total energy of a radical species derived from one-electron reduction of the association complex, and a third value by calculating the total energies of radical species derived from one-electron reduction of the association complex;

a fourth step for finding a fourth value by subtracting the second value from the first value, and finding a fifth value by subtracting the first value from the third value;

a fifth step for finding a sixth value by subtracting the fourth value from the fifth value; and

a sixth step for determining whether or not the sixth value exceeds a given target value,

wherein the second process sets the respective surface areas of the positive electrode and the negative electrode based on the sixth value of the electrolyte selected.

2. (Original) The manufacturing method of claim 1, wherein the association complex is a dimer formed of the cation and the anion.

3. (Original) The manufacturing method of claim 1, wherein the second step is finding the first value by calculating respective energies of the cation, the anion and the association complex individually while they are in a stable state,

wherein the third step is finding the respective second and third values of the cation, the anion and the association complex individually, and

wherein the fourth step is finding the respective fourth and fifth values of the cation, the anion and the association complex individually; and

wherein the fifth step is finding the sixth value by subtracting a minimum value among the respective fourth values from a maximum value among the respective fifth values.

4. (Original) The manufacturing method of claim 3, wherein the association complex includes at least one selected from the group consisting of a dimer and a trimer both being formed of the cation and the anion.

5. (Original) The manufacturing method of claim 4, wherein the trimer is formed of one molecule of the cation and two molecules of the anion, or formed of two molecules of the cation and one molecule of the anion.

6. (Original) The manufacturing method of claim 1, wherein the positive electrode and the negative electrode are formed of one of coconut-shell based activated carbon or phenolic-resin based activated carbon.

7. (Original) The manufacturing method of claim 1, wherein the positive electrode and the negative electrode are formed of activated carbons of which at least ones of materials or activating methods are different from each other.

8. (Original) The manufacturing method of claim 1, wherein the second process sets respective surface areas of the positive electrode and the negative electrode such that the areas differ from each other.

9. (Original) The manufacturing method of claim 1, wherein the positive electrode and the negative electrode are formed of mixture made from two or more than two kinds of activated carbons,

wherein the second process sets the surface areas by forming the positive electrode and the negative electrode by using mixtures formed of different kinds of activated carbons or mixtures formed at different compounding ratios.

10. (Original) The manufacturing method of claim 1, wherein at least one of the positive electrode and the negative electrode is formed of porous conductive material.

11. (Original) The manufacturing method of claim 1, wherein the electric double layer capacitor includes an electrode made from activated carbon, conduction adjuvant and binder,

wherein the second process sets the respective surface areas of the positive electrode and the negative electrode by adjusting at least one value selected from the group consisting of a density, a length, a width and a thickness of the electrode.

12. (Currently Amended) A method of manufacturing an electric double layer capacitor including a positive electrode and a negative electrode formed of activated carbon, and electrolyte, the method comprising the steps of:

in a model in which a solute is dissolved in solvent, assuming that a plurality of different association complexes are formed of cation and anion both being elements of the solute, cation which does not form the association complex is formed, and anion which does not form the association complex is formed;

finding a plurality of first values by calculating respective energies ~~of the plurality of different association complexes, the cation and the anion individually while they are in a stable state~~ which represents total energies of the association complexes, the cations or the anions individually while they are in a stable state;

finding a plurality of second values ~~and third values by calculating respective energies produced at reduction and oxidization of the plurality of different association complexes, the~~

~~cation and the anion individually~~ by calculating the total energies of radical species derived from one-electron reduction of the association complexes, the cation and the anion, and a plurality of third values by calculating the total energies of radical species derived from one-electron oxidization of the association complex, the cation and the anion;

finding a plurality of fourth values by subtracting the second value from the first value of the plurality of different association complexes, the cation and the anion individually, and finding a plurality of fifth values by subtracting the first value from the third value of the plurality of different association complexes, the cation and the anion individually;

selecting a maximum forth value from among the fourth values of the plurality of different association complexes, the cation and the anion individually, and selecting a minimum fifth value from among the fifth values of the plurality of different association complexes, the cation and the anion individually, and subtracting the maximum fourth value from the minimum fifth value for finding a sixth value;

selecting electrolyte having the sixth value higher than a target value;

measuring a withstanding voltage of a positive electrode and that of a negative electrode with the positive electrode and the negative electrode dipped in the electrolyte; and

setting respective surface areas of the positive electrode and the negative electrode based on the sixth value such that a totaled value of respective withstanding voltages of the positive electrode and the negative electrode can be maximized.